

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A mechanochemical sensor comprising:

a minute mechanical structure body having a supporting portion and a pair of at least two arms connected via elastic hinges to the support portion; ~~to a supporting portion of the minute mechanical structure body, and~~

~~a functional membrane that is connected to both arms formed at least on one part of a surface of the minute mechanical structure body;~~

~~supporting means for supporting the minute mechanical structure body; and detection a detection means for detecting the change of a mechanical property of the minute mechanical structure body~~functional membrane, the detection means including a force detection sensor that is connected to one of the arms; and

an actuator for providing tension to the functional membrane, the actuator being connected to the other of the arms.

2. (Currently Amended) A mechanochemical sensor as described in Claim 1

wherein wherein:

the minute mechanical structure body comprises a first region having the functional membrane formed on its surface and the first region is a thin layer.

3. (Currently Amended) A mechanochemical sensor as described in Claim 1 wherein the minute mechanical structure body is a plurality of minute structure bodies each comprising a different functional membrane.

4. (Original) A mechanochemical sensor as described in Claim 1 wherein the functional membrane is made of a biopolymer or a synthetic polymer.

5. (Currently Amended) A mechanochemical sensor as described in Claim 1 wherein the functional membrane is formed directly on a surface of the minute mechanical structure body by electro-spray deposition.

6. (Currently Amended) A mechanochemical sensor as described in Claim 1 wherein the functional membrane is formed directly on a surface of the minute mechanical structure body by ink jet deposition.

7. (Currently Amended) A mechanochemical sensor as described in Claim 5 wherein:

the minute mechanical structure body comprises a zone which will not be displaced or displaced negligibly even when a mechanical property of the functional membrane is changed, and

the minute mechanical structure body has its one end immersed into a test solution such that said zone is close to the surface of the test solution.

8. (Original) A mechanochemical sensor as described in Claim 5 wherein:

the detection means comprises a force-detection sensor and an actuator for providing a tension to the functional membrane.

9. (Original) A mechanochemical sensor as described in Claim 7 wherein:

the detection means comprises a force-detection sensor and an actuator for providing a tension to the functional membrane.

10. (Original) A mechanochemical sensor as described in Claim 5 wherein:

the minute mechanical structure body comprises a minute cantilever having the functional membrane formed thereon; and

the detection means is a sensor capable of detecting the bending deformation of the minute cantilever of the minute mechanical structure body.

11. (Original) A mechanochemical sensor as described in Claim 7 wherein:

the minute mechanical structure body comprises a minute cantilever having a functional membrane formed thereon; and

the detection means is a sensor capable of detecting the bending deformation of the minute cantilever of minute mechanical structure body.

12. (Original) A mechanochemical sensor as described in Claim 8 wherein:

the minute mechanical structure body comprises a minute cantilever having the functional membrane formed thereon; and

the detection means is a sensor capable of detecting the bending deformation of the minute cantilever of the minute mechanical structure body.

13. (Original) A mechanochemical sensor as described in Claim 6 wherein:

the detection means comprises a force-detection sensor and an actuator for providing a tension to the functional membrane.

14. (Original) A mechanochemical sensor as described in Claim 13 wherein:

the minute mechanical structure body comprises a minute cantilever having the functional membrane formed thereon; and

the detection means is a sensor capable of detecting the bending deformation of the minute cantilever of the minute mechanical structure body.

15. (Currently Amended) A mechanochemical sensor as described in Claim 14 wherein:

the minute mechanical structure body comprises a minute cantilever having the functional membrane formed thereon; and

the detection means is a sensor capable of detecting the bending deformation of the minute cantilever of ~~minute~~the minute mechanical structure body.